



UNHCR
The UN Refugee Agency



COMPENDIUM

Protection-Sensitive Access to Clean Cooking

OCTOBER 2021

Acknowledgments

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Cover image:

The Prosopis Firewood Processing and Charcoal Briquette Production Scheme centre in Melkadida during UN Refugees Chief official visit to Ethiopia’s Somali region, February 12, 2019. The Scheme started in 2017 with the aim to offer alternative fuel options to the refugees.

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Acronyms and Symbols

BPRM	US Department of State, Bureau of Population, Refugees, and Migration
CBI	Cash-Based Interventions
CCA	Clean Cooking Alliance
EnDEV	GIZ Energising Development
ESMAP	Energy Sector Management Assistance Program
FGD	Focus Group Discussion
GBV	Gender-Based Violence
GCR	Global Compact on Refugees
GIZ	German Development Agency (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH - German Corporation for International Cooperation)
HH	Household
IASC	Inter-Agency Standing Committee
IDP	Internally Displaced Person
ISO	International Organization for Standardization
LPG	Liquefied Petroleum Gas
MEB	Minimum Expenditure Basket
MTF	Multi-Tier Framework
NFI	Non-Food Items
O&M	Operation and Maintenance
OMC	Operational Management Cycle
PoC	Person of Concern
PPA	Project Partnership Agreements
RBM	Results-Based Management
RHC	Retained Heat Cookers
SE4ALL	Sustainable Energy for All
SDG	Sustainable Development Goal
UNHCR	UN High Commissioner for Refugees
WHO	World Health Organization
WFP	World Food Programme

Terminology¹

Energy: refers primarily to the source that powers cooking, lighting, heating, and electricity needs of refugee households and businesses, as well as community facilities such as schools and health centers, in displacement settings and UNHCR offices and facilities.

Energy access for cooking: the ability of the end user to utilize an energy source with a combination of an appliances that is usable for cooking activities. Energy access for cooking may also be referred to as cooking access.

Cooking fuel: Any material that stores energy that can be extracted through a combustion process to perform mechanical or heating work and can be used for cooking. Fuels are often classified in three types: solid (wood, coal, dung, etc.), liquid (diesel, kerosene, LPG, etc.), and gaseous (natural gas, biogas, etc.).

Cooking technology: appliance, powered by biomass or electricity or other energy sources, that allow the cooking process. Cooking technology may also be called cookstoves.

Clean cookstoves: Cookstoves that produce significantly less household air pollution than traditional three-stone open-fire stoves and meet a specified emission standard are often called clean cookstoves. Clean cookstoves may also be called advanced cookstoves.

Efficient cookstoves: Cookstoves that use less energy to deliver a given amount of usable heat compared to traditional three-stone open-fire stoves and meet a specified efficiency standard. Efficient cookstoves may also be called improved cookstoves.

¹ Terminology based on wording as published on UNHCR Global Strategy for Sustainable Energy (2019) and ESMAP handbook “BEYOND CONNECTIONS Energy Access Redefined” (2015).

1. Introduction

LIMITED ACCESS TO ENERGY FOR COOKING HAS AN IMPACT ON PROTECTION OF REFUGEES AND IDPs

Limited or no access to cooking fuel and technology can have significant repercussions on refugees, and internally displaced persons (IDPs), putting them at risk of gender-based violence (GBV), limited education opportunities and health-related concerns, such as exposure to smoke and pollutants, ultimately jeopardizing broad protection outcomes for the most vulnerable.

ACCESS TO CLEAN COOKING IS A BASIC NEED, A SUSTAINABLE DEVELOPMENT GOAL AND ONE OF THE OUTCOME AREAS OF THE UNHCR GLOBAL STRATEGY TO SUSTAINABLE ENERGY

Access to cooking fuel and technologies is a key sustainable development goal. [The 2030 Agenda for UN Sustainable Development Goals \(SDG\)](#) adopted by all United Nations Member States in 2015, “provides a shared blueprint for peace and prosperity for people and the planet, now and into the future, reflected in the seventh goal Ensure access to affordable, reliable, sustainable and modern energy for all” ([SDG 7 / target 7.1](#)).

In line with the [UNHCR Climate Action Framework](#), access to sufficient cooking fuel and technology is a key corner stone of the [UNHCR Global Strategy for Sustainable Energy 2019-2025](#). The Strategy aims to enable refugees their host communities, IDPs and other persons of concern to UNHCR to meet their energy needs in a safe and sustainable manner and ensure that UNHCR’s response is also environmentally sustainable.

Furthermore, [the Global Compact on Refugees \(GCR\)](#) offers a framework for more predictable and equitable responsibility-sharing, recognizing that a sustainable solution to refugee situations cannot be achieved without international cooperation. Specifically, on energy and cooking: *...Environmental impact assessments, national sustainable development projects and business models for the delivery of clean energy that cater more effectively to refugee and host community needs will be actively supported” and “Safe access to fuel and energy programming to improve the quality of human settlements.*

AIM OF THE COMPENDIUM

The aim of this compendium is to support the development of a safe cooking access programme with specific focus on protection outcomes. It outlines a step-by-step approach and a list of options to address cooking challenges when confronted with limited, inappropriate, inefficient local cooking solutions, or the lack of access thereof.

NOTE FOR THE USER

The use of this compendium is intended for UNHCR personnel and partners to support programme development in compliance with UNHCR policies and guidance. The proposed steps are aligned with the [Operations Management Cycle \(OMC\)](#) as outlined in UNHCR’s Programme Manual.

“The five main challenges related to cooking energy programs are: protection, relations between hosts and displaced people, environmental problems, household energy-related natural resource restrictions, and livelihood related challenges. In addition, there are health and education issues related to cooking energy access” [UNHCR 2009](#).

The compendium is based on the experiences in refugee situations but can be adapted to internal displacement situations as well. The decision on the levels of assistance for cooking to IDPs is decided at country level based on the coordination between the actors on the ground.

GUIDING PRINCIPLES AND APPROACHES

Interventions to improve cooking access should be designed from a rights-based approach complemented by a set of principles to safeguard refugees and IDPs from protection risks such as GBV and conflicts with host communities that often arise due to competition over limited natural resources and associated environmental impacts. Access to cooking in humanitarian settings can enable health, nutrition, education, and livelihoods outcomes, thereby promoting the self-reliance of refugees. All cooking programmes shall adhere to the following protection principles:

- ▶ **'Do no harm'** that actively avoids exposing refugees and IDPs to further harm resulting from one's actions
- ▶ **UNHCR's community-based approach** shifts the focus of programme design from individual assistance towards building on the existing knowledge, skills, and capacities of refugees and IDPs and their communities
- ▶ **The rights-based approach promotes** the respect for rights at both individual and community levels as well as the change needed to fulfil these rights
- ▶ **Age, gender, and diversity policy:** ensures that all segments of a population have equitable and non-discriminatory access to assistance and protection
- ▶ **Data protection policy:** seeks to protect the rights of individuals whose information it holds, and to ensure that the processing of personal data conforms to key data protection principles

Cooking programmes shall consider the following programmatic approaches of being evidence-based and environmentally & socio-economically sustainable: cookstoves and fuels should be selected to ensure sustainability of the supply, not jeopardize local livelihoods opportunities, and have minimum environmental impact in terms of combustion emissions, end-of-life practices, and recycling.

2. Assessment of cooking interventions

This chapter illustrates how to carry out an assessment for cooking needs, understanding preferences and potential operational issues, identifying the potential solutions defined by protection principles, environmental risk assessments, and socio-economic sustainability criteria.

To gain a comprehensive understanding of the needs and context, personnel and partners need to ensure that refugee and IDP cooking needs are considered during the comprehensive needs assessment in collaboration with other sectors (e.g., protection, health, nutrition and food security, livelihoods, WASH, and shelter).

[UNHCR's Needs Assessment Handbook](#) illustrates the common data collection tools and methodologies which should be observed throughout all operations. Combining two or more methods – research triangulation – is imperative when assessing cross-cutting issues like access to cooking fuels and technologies. For instance, consulting different population groups is important to understand people's needs and cooking habits. It will also support the early identification of potential usage issues (due to intra-household dynamics) and help

to generate solutions on how to overcome them. Evaluation of individual households' size is an important information to collect as it will inform the decision on the daily amount of fuel and the choice of technology to satisfy the cooking needs.

- ▶ Each assessment shall be carried out with a participatory approach
- ▶ If time and resources are limited for a cooking access-specific assessment (especially during emergencies), fuel and cooking stove-related questions shall be included in multi-sectoral needs assessments of local markets (e.g., [Multi-sector market assessment](#))
- ▶ Cooking related expenditures (including purchase of fuels and bills for utilities) shall be included in the Minimum Expenditure Basket (MEB) calculation, to tailor Cash Based Intervention (CBI)

Before conducting any assessment, refer to [the UNHCR ethical and safety guidelines](#). It is also important to be aware that participatory assessments with children must follow specific guidelines. For more details, refer to the [World Health Organization ethical and safety recommendations](#) for researching, documenting, and monitoring sexual violence in emergencies.

2.1 Data and information collection methods

The most appropriate data collection method related to energy access should be chosen, based on the specific local context:

- ▶ **Focus group discussion:** a qualitative approach to gain an in-depth understanding of the specific issue
- ▶ **Key informant interviews:** qualitative interviews with individuals who have extensive knowledge about the community and context
- ▶ **Direct observations:** used to gather additional information on the subject in their natural setting, providing a richer understanding of the overall environment
- ▶ **Household surveys:** to collect provide quantitative data that can be easily analyzed

Sample questionnaires that can be modified according to the specific context are in the [Annexes 7.1](#) and the [UNHCR Tool for Participatory Assessment](#) can be used as a guiding document for the proper preparation, facilitation, and permission to conduct interviews and surveys.

In the assessment process, enumerators are vital to the success of the data collection exercise. They should be well prepared (i.e., introduction to the context, potential sensitive topics and energy related issues) and trained before they conduct the interviews since they guarantee data quality (i.e. high respondent rate and accurate responses).

CASE STUDY: COOKING ACCESS ASSESSMENT UGANDA

The "[Toolbox for Energy Assessments in Refugee Settlements and Host Communities](#)" is a contribution of GIZ Energising Development (EnDev) Uganda to the improvement and harmonization of efforts to assess the energy situation in refugee settlements and host communities in Uganda. The toolbox includes both electricity and cooking access assessment and it can be used as a basis to build a household survey.

This assessment is aimed at understanding the specific settlement and host community conditions, the markets for quality energy products, household energy use and preferences as well as energy vendor activities. For this purpose, EnDev Uganda conducted interviews with 400 household, 30 energy vendors and 9 focus groups.



UNHCR staff conduct a focus group with young women from South Sudan living in Ayilo Refugee Settlement, to assess their needs and brainstorm ideas. Uganda. © UNHCR/Elena D'Urzo

2.2 Protection considerations

When designing assessments, ethical and safety principles should always be applied, and the [Ethical Assessments Checklist](#) should be consulted throughout. Particular care should be taken with assessments that could lead to the disclosure of gender-based violence and/or other protection issues.

Gender-based-violence survivors should not be sought out or targeted as a specific group during assessments. Assessments of access to cooking may disclose reports of gender-based violence incidents hence they should be preferably conducted in collaboration with specialists and/or a partner agency specializing in gender-based violence intervention. More information in the [IASC Gender-based Violence Guidelines 2015](#). Enumerators must be trained on how to safely handle a disclosure and make a referral following the disclosure of an incident.

The points below summarize the steps to follow to increase active participation of community members in cooking access activities.

- 1 Engage existing/create forums** in which women, girls, older persons, persons with specific needs may participate.
- 2 Ensure that programme objectives reflect the needs**, concerns, and values of all segments of the community related to access to cooking fuels and cookstoves.
- 3 Establish systems** that enable the community to provide inputs and feedback to the programme/project.

SAFETY MAPPING EXERCISE

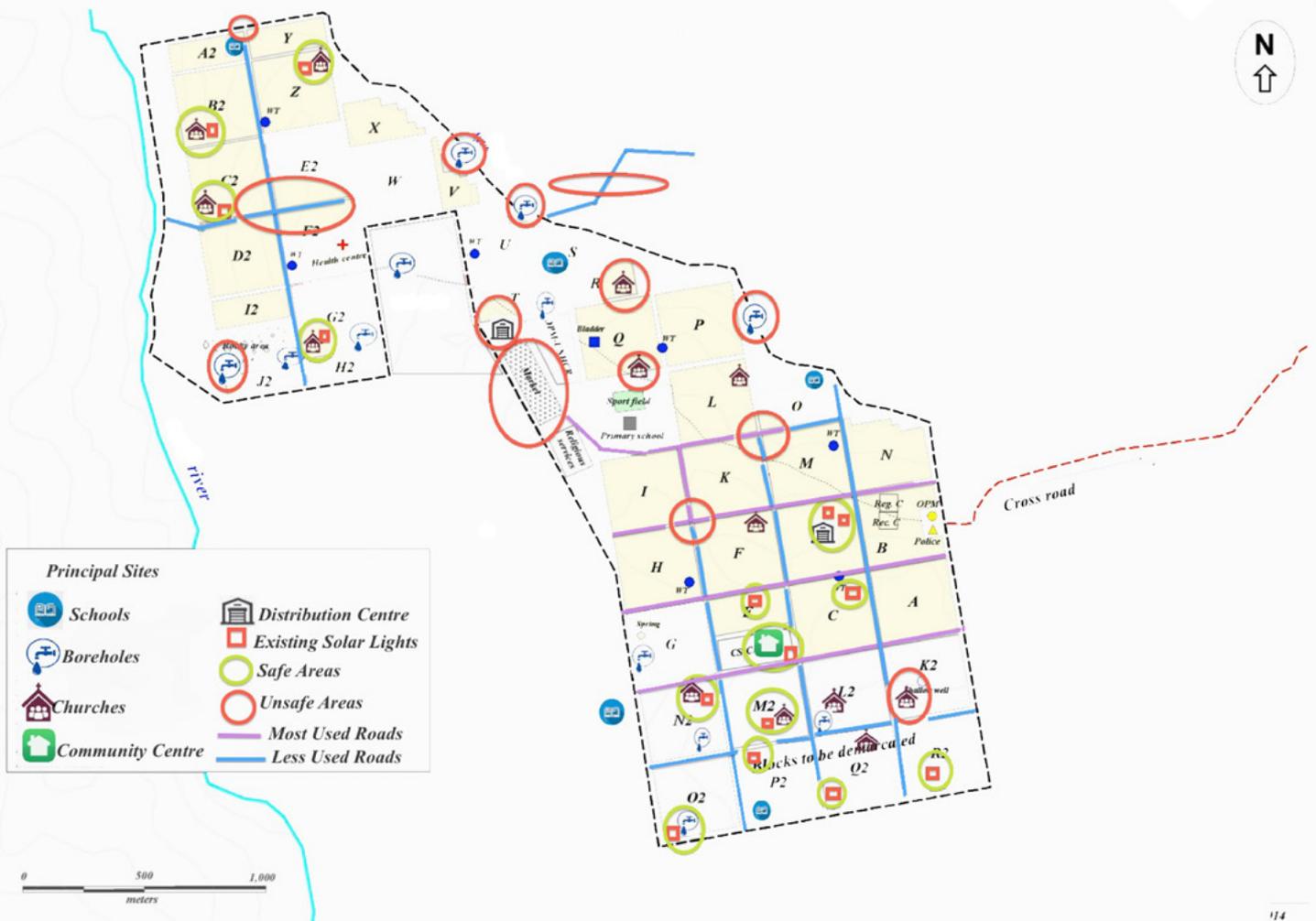
The [Safety Mapping Exercise](#) is a participatory research method through which participants use creative thinking and a concrete approach to communicate information about their safety and security during cooking activities (fuel collection, cooking facilities, fire risks, etc.).

During this exercise the participants use a map to visually pinpoint their communities, highlight safe and unsafe locations, describe what determines safety, and discuss how the safety of different locations is perceived.

Trained UNHCR personnel and partners should employ this exercise to identify risks and unsafe areas with focus group participants and consider movements both inside and outside the camp to include typical fuel collection locations.

It is also important to holistically assess the entire activity paths and not only focus on strategic spots, to ensure the intervention does not shift the problem to a different geographical location instead of mitigating the overall risk.

The findings of the mapping exercise should be shared with camp management, shelter and NFI, and protection personnel, and the authorities and policing structure where appropriate, so that programming can be adapted as needed.



Example of Safety mapping exercise, with highlighted safe and unsafe areas, most and less used roads and principal community facilities. © UNHCR

2.3 Environmental considerations

Access to cooking fuels and technologies has a direct impact on the environment and on the welfare and well-being of people using natural resources. Assessing environmental risks at the earliest stage of the programme design is crucial to determine appropriate mitigation actions and manage potential negative impacts. Cleaner fuels and fuel-efficient stoves have a benefit on PoCs health and air pollution.

The environmental impacts related to the supply and preparation of food in refugee and IDP situations include, but is not limited to the following:

- ▶ **Degradation of forests** and other wooded areas for gathering cooking fuel, leading to direct and indirect impacts such as degradation of vegetation, loss of topsoil, soil erosion, siltation of surface water sources and loss of fauna
- ▶ **Air pollution, both inside shelters and around settlements**, due to the burning of fuel for cooking, leading to an increase in health problems
- ▶ **Pollution due to discarded packaging waste** such as paper, plastic, and various laminates, normally used for carrying food, wood, charcoal and other fuels
- ▶ **Fossil fuel consumption** and the corresponding emission of greenhouse gases

To capture initial environmental consideration the practitioners should survey the environmental conditions of a particular location during a specific period of time, to identify any existing or potential problem areas with specific regards to the use of natural resources, but also considering broad social and economic impacts.

Possible measures to reduce or eliminate environmental negative impacts, bearing in mind the specific context constraints, are listed below:

- 1** In conjunction with specialists from other sectors (community-based protection, field, shelter, settlement planning, environment), **review technical and social activities related to food** transport, storage, preparation, etc. to reduce energy needs and minimize pollution and waste production.
- 2 Lower fuel consumption through promoting energy efficiency** by all users (domestic, institutional, business, agency) by, among other things, introducing disincentives to high fuelwood consumption and identifying energy-saving techniques tailored to users' specific needs (e.g., improved cookstoves with higher thermal efficiency, pressure cookers).
- 3 Consider the supply of alternative fuels and renewable energy:** the types of fuels that beneficiaries are accustomed to, need to be compared with what is available locally. Fuels whose supply is the best balance between being sustainable and economically viable may then be provided, considering the local natural resource situation and the funding available.
- 4** If other options are not available **ensure that fuelwood is harvested in a sustainable manner.** This may be done by introducing controls over the way in which people harvest fuel (e.g., areas, times, species) or through an organized fuelwood supply programme based on wood whose origin is properly monitored (e.g., wood that has been harvested from a sustainable woodlot or plantation).

CASE STUDY: LPG – BANGLADESH

The arrival of an influx of over 740,000 refugees from Myanmar in 2017 put a strain on the local environment in Cox's Bazar already under pressure prior to the influx due to extensive firewood collection in the area. UNHCR has, since 2017, worked closely with the authorities and other humanitarian agencies to find a better solution for fuel supply for refugees, to mitigate the impact on the environment and protect and restore it with the help of refugees. By June 2021, the programme has been able to reduce the deforestation by 79% in the refugee hosting areas.

The solution adopted was liquefied petroleum gas (LPG), which is available locally in Bangladesh and was assessed as the best fuel alternative. Liquefied petroleum gas (LPG) was piloted in August of 2018 on 6,000 households and rolled out across the camps thereafter. Once fuel was provided, stream rehabilitation began with activities involving extensive planting to stabilize soil, regeneration of soil and rebalancing of the impact on the environment.

To improve the sustainability of the LPG programme, UNHCR's pre-pilot project to look at the benefits of introducing [pressure cookers as technology to reduce fuel consumption](#) to the Rohingya refugee settlements. In 2020, 200 Rohingya families have received pressure cookers. A one-week baseline monitoring and three weeks post-distribution monitoring exercise were undertaken to measure LPG consumption and involved discussions with families on their experience with, and the safety of, their pressure cookers.



Rohingya refugee that lives in Nayapara refugee site in Bangladesh receiving a gas stove and cylinder from UNHCR.
© UNHCR/Firas Al-Khateeb

3. Cooking fuel and stove options

Technical considerations of the most appropriate cooking solutions are linked to protection and environmental analyses outlined in the previous chapter. This phase of cooking programmes aims to test the viability of a specific action or set of actions and define potential outcomes and obstacles.

To ensure that the most appropriate cooking technologies are selected, it is essential to consider the food types, preferences, and practices, the available resources and fuel options, sustainability factors, efficiency, cleanliness, maintenance requirements, safety factors and livelihood opportunities that may arise from energy programs. The short, medium, and long-term advantages and disadvantages of different technology interventions in terms of protection and environmental impact must be assessed.

Any technology, especially if still in a pilot phase, shall consider its users' acceptance, behavioural changes that may be required and how long it will take for people to adjust to those, particularly in a daily activity such as cooking which is so critical in everyday life. Therefore, stove design should incorporate a high degree of familiarity (also complemented with trainings and capacity building activities) and be adapted to suit local cultural preferences to every extent possible. Context analyses are vital, as well as the participation of refugees throughout all project phases. Design modification shall be allowed based on users' feedback, even if this is at the expense of a small loss in efficiency.

3.1 Household behaviors, preferences and needs

To select cooking interventions, it is essential to establish cooking preferences and existing practices in the community and within the households, particularly where and when refugees or IDPs are exposed to protection risks, if and how they can cook the distributed food properly and the required level of response interventions.

Introducing new cooking fuels and stove technologies in a specific context should be designed at a pilot-scale level first (selecting a limited number of users) followed by a scale-up to a larger number if the pilot is successfully implemented: technology is retained, the cookstove still in use after post-implementation monitoring and the daily cooking needs of PoC are correctly addressed.

To ensure adequate cooking solutions and reduce protection risks, there are two different approaches:

INDIVIDUAL HOUSEHOLD COOKING

Food type, size of the household, personal and social factors, time, skills, and habits, are all interlinked factors that affect the cooking dynamics. For this reason, very often cooking activities are preferably carried out in the intimacy of the individual household. When possible, individual household cooking should always be prioritized. The evaluation of individual households cooking, even for different population groups, will inform the decision on the daily amount of fuel and the choice of technology to satisfy the cooking needs.

COMMUNAL KITCHENS

Considerable economies of scale can be achieved by sharing cooking between households, reducing fuel consumption, and enhancing energy efficiency. Also, curbing environmental degradation decreases household fuel expenditure and reduces daily workload and the associated protection risks, mainly faced by women and children. Providing large cooking pots and clustered housing, can facilitate communal cooking in displacement settings. To be effective, however, cultural acceptance of such solution needs to be confirmed, and housing layout must be integrated into camp planning from the onset.

Challenges: Communal cooking is often difficult to introduce. Families will have different culinary habits and dietary customs and may not be willing to compromise them (GIZ HERA, 2011). Also, people may not like to display to other families what they cook as this is often a proxy of their income level and what they can afford. For this reasons, [communal kitchens are often a temporary solution in the first emergency phase](#) or other specific situations (land is not secured for example, or there is overcrowding).

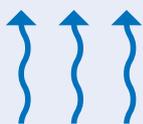
3.2 Combination of cooking fuel and stove

In a cooking intervention the entire cooking system - i.e., the combination of stove and fuel - must be considered for appropriate design. In the context of cooking energy, “clean” refers to the solution’s impact on the users’ respiratory health and the production of minimal emissions (carbon monoxide and particulate matter) and reduced household air pollution. To be considered “clean,” the stove and fuel must be considered in combination and must be certified based on emission rating, as per the [WHO Guidelines](#).

It should also be noted that achieving the beneficial health impacts from a clean stove and fuel combination is only possible if the household is not using any other less clean stoves and fuels at the same time.

Cooking energy access is measured in a tiered spectrum, from Tier 0 (no access) to Tier 5 (the highest level of access). [The Multi-Tier Framework \(MTF\)](#) developed by ESMAP, under the SE4ALL initiative and in consultation with multiple development partners defines energy access as “the ability to avail energy that is adequate, available when needed, reliable, of good quality, convenient, affordable, legal, healthy and safe for all required energy services”.

CRITERIA FOR FUEL AND COOKSTOVE COMBINATION SELECTION



1 Exposure: personal exposure to pollutants, which depends on both stove emissions and ventilation. A low emissions stove in a house without windows and poor to no ventilation can be more harmful to human health compared to a high emissions stove used outside in full ventilation. Hence, the cooking energy system needs to be considered together with cooking area location and design.



2 Efficiency: If a stove is fuel-efficient, a higher proportion of the heat produced during the cooking is transferred to the food, enabling it to cook quicker and therefore the fuel supply will last longer. Reducing the need to collect fuelwood, fuel-efficient stoves can help relieve pressure on the environment and reduce drudgery for women and children, who are most often tasked with cooking and fuel procurement. For this reason, fuel efficiency may be essential to users, but it is important to consult with beneficiaries on their preferences.



3 Convenience: time spent in collecting / purchasing fuel and preparing the stove. For example, changes such as having to cut fuelwood into smaller pieces to fit into new stoves or altering the time of day at which meals are prepared (e.g., using passive solar cooking box) can jeopardize stove uptake.



4 Safety: severity of injuries caused by the stove over the past years. Safety is often a high priority concern, particularly when children are present in the cooking area. Absence of an open fire around the cooking site (e.g., using electric cookers) offer fewer safety threats, while some stoves may present a high risk of burns to the cook or fire breakouts.



5 Affordability: share of household budget spent on fuel for the specific cookstoves utilised and the cost of the cookstove itself. Subsidised mechanisms can be provided to enable the population to afford the cooking technology and fuel (e.g., cash transfers or fuel vouchers). While cooking fuel resources may be distributed in-kind during an emergency, the longer-term affordability could be compromised when humanitarian assistance is phased out, so this is where exit strategies from fuel distribution are essential.



Rwanda. Refugee mother sits outside her home with her children, as her eldest daughter displays the energy saving pellets they use as fuel for the stove. © Inyenyeri/Nancy Uwineza

CASE STUDY: BIOMASS-RWANDA

In Kigeme refugee camp in Rwanda, refugee families were provided with an advanced cook stove (gasification technology) – a clean biomass-fuelled stove that dramatically reduces fuel consumption and the exposure to harmful smoke emissions.

UNHCR partnered with a local renewable energy company that sells biomass fuel pellets, to provide 300 families with the energy-efficient stoves. These families have voluntarily signed up as customers, committing themselves to purchase a minimum amount of fuel pellets per month from the supplier when receiving the stove.

Refugees confirmed that cooking with the clean improved stove “has a positive impact on their health” as it reduces intensely the exposure of its users to toxic emissions in their homes.

The amount of biomass needed to cook meals also reduces by 80 to 90 per cent compared to cooking with firewood or charcoal. Based on a [study](#) supported by the Cookstove Alliance, *while “speed of cooking” and “cleaner/reduced smoke” were both motivators for participating and experienced benefits, it is interesting to note that larger percentages of respondents cited “ease of cooking” and “versatility” as motivators for participating. However, the high cost of pellets remains a significant barrier to wider adoption of this cookstove model.*

3.3 Cooking fuels

Cooking fuel options vary from solid biomass (firewood, agricultural residues, briquettes, and pellets), liquid/gas (biogas, ethanol, LPG) to electrical (electricity provided by national grid or off-grid systems of various sizes). In [Annex 7.2.1](#), a table with various cooking fuel options is presented. For more information on fuels, the Clean Cooking Alliance website provide an extensive [cooking fuel database](#).

KEY ELEMENTS TO GUIDE THE SELECTION OF COOKING SOLUTIONS ARE:

- ▶ **Geographic area and climatic/physical** parameters (solar radiation, indoor/outdoor cooking location, etc.)
- ▶ **Relevant government policies** on the use of natural resources for cooking fuel (wood, coal, LPG, etc.)
- ▶ **Relations with the surrounding community** and potential tensions generated by sharing reduced cooking fuel resources (e.g., firewood)
- ▶ **Food types** and food preparation habits
- ▶ **Cooking technologies available** (local markets and retailers)
- ▶ **Fuel types and access** (supply chain, local availability, costs)
- ▶ **Negative coping mechanisms** including associated protection risks, in case access to cooking fuel is insufficient
- ▶ **Environmental concerns** (deforestation, tree species, etc.)
- ▶ **Living and housing conditions** (type of shelter and available cooking space)
- ▶ **Health concerns:** related to fuel combustions emissions, smoke, and impact on respiratory systems
- ▶ **Social context** and gender roles

For a guided selection process based on the context, the [IASC SAFE Decision Tree Diagram on Factors Affecting Choice of Fuel Strategy in Humanitarian Settings](#) can be consulted in choosing a cooking-fuel strategy in acute emergencies or protracted crisis settings. While there are numerous options to choose from, in terms of activities and technologies, the chosen interventions should reduce exposure to protection risks and do no harm.

CRITERIA FOR COOKING FUEL SELECTION



1 Sustainability of the supply: The selected fuel availability should be able to meet the demand and be reliable and sustainable. Thus, before the introduction of a cooking intervention, daily fuel consumption should be determined, and the demands associated with the energy resource should be analysed.



2 Cultural acceptance: The selected fuel and technology should be culturally acceptable as this will increase the chance of success of the intervention, always creating the link with the environment considerations.



3 Possibility of choice: Whenever possible, people should have the opportunity to choose their fuel preferences, as this will increase acceptance. If markets are available and accessible, providing cash assistance to meet fuel needs may increase this choice (see [chapter 5](#) for more project delivery methods).



4 Incentives to increase sense of ownership and livelihood opportunities: wherever possible consider linking cooking interventions to income-generating activities to increase the sustainability of the intervention or alternatively consider cash transfers or fuel vouchers to allow the population to purchase fuel.



5 Cooking method: the physical dwelling in which people live is a key determinant of cooking methods and therefore also contributes to the selection of the fuel if the cooking happens indoors or outdoors, option for the flue (chimney or smoke expulsion of some sort, different fuel types carry different degrees of safety risks due to fire, storage issues, etc.).

CASE STUDY: ENERGY COOPERATIVE IN ETHIOPIA REDUCES PROTECTION RISK, IMPROVES WOMEN'S LIVELIHOODS

A Somali refugee is the Chairwoman of her camp's firewood and charcoal briquettes cooperative. Already in the early stage of the cooperative, she has seen positive changes in her life. She used to go to the bush to collect firewood, which she would then sell on the local market. She remembers the many problems that the practice caused her and her fellow refugee women: they had to leave their children behind without food all day, as there was no one to cook for them, or take them with them on the long and hazardous search for fuel. Sometimes, they would meet men with ill intentions lurking in the bush, which forced them to travel in groups. Competition for resources would also result in conflicts with the host community.

Now, her cooperative, which comprises mostly women, receives the firewood directly from another cooperative based in the town of Dollo Ado. The Dollo Ado cooperative harvests the *Prosopis Juliflora* trees, which have been designated as pests (invasive species) by the Ethiopian Government and are abundant in the area. Once the cooperative in Melkadida receives the firewood, they peel it and use the residue to produce charcoal briquettes. Both products are then sold on the local market.

From an environmental perspective, this project is important as it contributed to biodiversity conservation and species richness because with *Prosopis Juliflora* being an invasive species, it tends to colonize a particular ecosystem effectively killing of any other plant species in the area. Utilization of this invasive species thus allows for other flora and fauna to thrive in an ecosystem.



Pesky weed provides energy and income for Somali refugees and hosts. © UNHCR/Eduardo Soteras Jalil

3.4 Cookstoves

There is a wide variety of cooking devices on the market. However, this process of selection becomes easier once the most appropriate fuel option has been identified. In [Annex 7.2.2](#), a table with cookstoves classification is shown and the Clean Cooking Alliance website provides an extensive [cookstove database](#).

CRITERIA FOR COOKSTOVE SELECTION

- 1 Cultural acceptance:** This is one of the most important points during stove selection. Comprehensive assessments of cooking practices and dietary needs should be conducted before stove selection. Failure to address appropriateness issues often leads to the rejection of new cooking technologies.
- 2 Physical design:** the design of the cookstove should accommodate traditional cooking pots, consider the size of the households (in big families they will need big cookstoves to cook meals), should meet the requirement of particular cooking habits (for example, sitting on the floor while cooking is common in some cultures) and taking in the consideration the type of food consumed (beans may require longer cooking time in a well-insulated pot like a pressure cooker).
- 3 Adaptability:** A stove that can work with several different fuels may be preferable since persons of concern often have different cooking practices. Even though the possibility of switching between fuels could be a big advantage, multi-fuel stoves are usually less efficient compared to single-fuel stoves.
- 4 Asset value:** consider the value of the stove compared with other commonly owned household items. If the value is significantly higher than anything else a family owns, they may be more likely to be sold to meet other immediate needs or it can put the household at risk of theft and harm.
- 5 Durability:** lifetime shall be maximized by using certified components and spare parts should be affordable and easily purchasable by the households.

6 Market availability: A stove that can be found in the local market and is of good quality should be prioritized as it will reduce the complexity of the entire supply chain (procurement, spare parts, maintenance, client service...). If the quality of the local manufacture does not satisfy the minimum standards of cookstoves, providing support to the local supplier to upgrade the production can be considered.

GUIDANCE FOR STOVE & FUEL SPECIFICATION

The 'Clean Cooking Catalogue' developed by the Global Alliance for Clean Cookstoves (CCA) is a comprehensive online stove database in which tested stove performance can be filtered against other cooking energy factors – including fuel type, materials, price range and certifications. The catalogue can guide practitioners and assist them in applying specifications the most appropriate cooking technology for the context in which they are working (CCA, 2019).

CASE STUDY: ETHANOL - SUDAN

In 2019, during a UNHCR led participatory assessment in the White Nile State, many women requested an alternative energy source that would reduce or eliminate the need for firewood.

In 2020, UNHCR started a pilot project to help refugee families switch to using clean-burning ethanol for cooking. In partnership with a local company which produces sugar in White Nile State, 800 refugee families across two refugee camps and 200 families from the host community were provided with stoves and ethanol.

The switch to ethanol resolves the multiple problems that firewood causes to people and the environment, such as harmful smokes, and deforestation, and brings the additional benefit of allowing faster cooking. "Firewood produces a lot of smoke which affects the eyes and lungs. But this will be no more," says one beneficiary, adding that the stove works very fast. "Food gets ready in minutes!"

At the end of the pilot, given the high acceptance of the ethanol, the programme was expanded to 1000 households in 2021, with the sugar company continuing to supply the fuel, while a local workshop took over the process of making the stoves.



Ethanol cooking stove distributed to refugees as part of a project piloted by UNHCR as a clean cooking energy alternative.
© UNHCR/Vanessa Zola

4. Implementation

Recognizing the importance of integrating food, fuel, and cooking within a humanitarian response helps to respond appropriately to the specific context of each displacement setting.

Three implementation modalities are available for cooking access programmes:

- ▶ **Through partners:** it includes selecting, negotiating, drafting, signing, monitoring, and closure of project partnership agreements (PPA)
- ▶ **Direct by UNHCR:** management of commercial contracts under UNHCR Direct Implementation
- ▶ **A combination of direct and partner implementation**

Given the multisectoral nature of cooking and fuel-related programming, UNHCR and partners should continue to collaborate across sectors to ensure successful implementation and complementarity while avoiding duplication.

The following table outlines some of the most typical delivery modalities for cooking interventions in UNHCR working contexts and their respective benefits, challenges, and considerations.

Intervention	Benefits	Challenges	Considerations
In-kind provision of cooking fuel (e.g., firewood, charcoal, LPG, etc.) and cookstoves	Reduce or eliminate the need to collect firewood for cooking fuel and the exposure to protection risks giving to PoCs more time to undertake other socioeconomic activities	It can be expensive and difficult to sustain, the fuel resources can be limited or challenging to procure and introducing new fuels to a community requires awareness on its proper use and willingness to change	Direct provision is essential in acute emergencies but participation of communities is critical to ensure the appropriate distribution of any new cooking devices
Cash based intervention	Cash assistance may decrease response time, including in acute emergencies and/or hard to reach places and increase access to more options In urban displacement situations the MEB should include a component for cooking to ensure that families can meet their fuel needs (as for example in Jordan)	Local suppliers of fuel/ stoves may be more unpredictable when not managed directly (example through direct distribution)	Best suited in situations where the market is available. Cash transfer for minimum basic needs should include the cost of utilities, e.g. fuel, and the cost of a stove if not donated
Livelihood alternatives and market-based approach	Cooking related livelihood alternatives can help to ensure sustainability and longer-term protection outcomes PoCs have greater access to income and become more self-sufficient	Livelihood opportunities for PoC can be very limited in humanitarian contexts, nor even allowed in some countries. PoCs may not have the means to purchase the goods being produced	Newly established businesses can have difficulty with the marketability of the products if in the area other actors are still providing in-kind of the same items

4.1 Community participation and stakeholders' commitment

It is important to continue the process where the community participates actively and can build ownership even during the implementation phase. Women's engagement from the beginning and throughout the intervention must be encouraged as it will create a well-coordinated consultation among all stakeholders.

To increase active community participation during the implementation phase and build ownership:

- ▶ Ensure that women and men of all ages receive information on the programme and are given opportunities to comment
- ▶ Share assessment results with all relevant actors making sure that they are reflected in the design and objectives of the project/programme
- ▶ Design programming to maximize local skills and capacities and not to undermine people's own coping strategies if these do not have negative effects on their protection and wellbeing
- ▶ Provide the community with workshops on securing and maintaining cookstoves
- ▶ Consider the creation of community cooking committees, establishing criteria for all committees on female participation (i.e., 50%)
- ▶ Consider women-friendly tools and machineries that can be easily utilised by all
- ▶ Targeted outreach to gather input from all groups, throughout the whole process

To achieve maximum coordination and delivery of effective protection, assistance, and solutions to the persons of concern, including cooking programs:

- ▶ Carry out an open design process that engages a 'whole-of-society' pool of stakeholders. It is essential to review and analyze the roles, expectations, and commitment of the different stakeholders to maximize synergies
- ▶ Conduct a resource review on what the potential funding resources might be (i.e., regular internal resources, ear-marked funding and donor-driven resources, partners with available funding and resources, other available funding sources)
- ▶ Consider more in depth the context specific risks and the possible mitigation actions for the identified interventions. Example table below:

Initiative	Risk assessment	Likelihood	Risk mitigation
Cooking Intervention	Lack of financial assistance available to PoC	Low	Design of assistance packages for PoCs – cash, different sizes for LPG cylinders etc.
Disclaimer This example is provided only for explicative purposes: the risk, likelihood, and mitigation vary from context to context	Lack of clear household cooking component in national energy policies	Medium	Dialogue with host government to extend national laws, institutions, and processes to PoCs
	Cooking practices of PoCs are inconsistent with cookstoves and fuels intervention	High	Include awareness activities, provide appropriate cooking solutions, support market chain, increase maintenance service
	Lack of sustainable and efficient supply of biomass (local entrepreneurs and farmers)	Very High	Provide technical and financial assistance to biomass producers (wood and charcoal) to allow sustainable production including efficient transport networks

4.2 Procurement and testing

In the procurement process, ensure that all the materials, components and equipment are appropriate for the context and comply with all applicable [standards and regulations](#) depending on the type of technology, the size of the system, the country, and the type of facility (in case of communal kitchens for example in schools and health centers). [ISO standards and ratings](#) (Tiers 0-5) exist for thermal efficiency performance.

To inform the tendering process, it is important to describe what the purpose of the cooking intervention or system is, what the products will be used for, and where they will be located. It is necessary to specify the system's location so that tenderers may suggest suitable products for the site circumstances. Provide a clear, detailed, and quantitative description of what is being sought. The [UNHCR Supply Management Manual](#) provides more in-depth explanations.

Ideally it is advisable to explore local, regional, or cross border markets on availability of cooking devices and after-sales service. Finding local solutions will ensure availability of technical expertise, including ease of availing service and parts which fall under warranty, and positive environmental outcomes by reduced transport-related carbon emissions.

Cost estimates per unit cookstoves and fuel supplies amounts should be based on up-to-date market costs information from the country or international price lists in case of international procurement. This approach will provide quantities during the tendering process to cover the highest number of households for the longest time within the available budget.

Technical specifications of cooking fuels should follow international standards in terms of chemical contents (e.g., Sulphur for LPG), fuel quality and fuel certifications. Transport, distribution, storage, and handling of cooking fuels should follow the highest environmental health and safety standards (both national and international) to preserve the health of the beneficiaries and surrounding communities. Training and capacity building of refugees and IDPs on cookstove and fuel use and refill handling shall be included in the request for proposal.

All cooking solutions should include provision for testing and inspecting components, products, and services before, during, and after the delivery to ensure compliance with the specifications and designs. This should be taken into consideration during the contractual agreement preparation.

As stoves differ greatly in technical performance, testing is necessary to identify clean stoves and compare different models. Stoves technical performance is verified through internationally agreed test protocols. Emissions and fuel use must be tested at the same time to avoid running a test to achieve good fuel economy at the expense of emissions and vice versa. The need for guidance in stove selection has led to the development of ISO/TC 285, an international standard which rates stoves based on the criteria of durability, safety, fuel-efficiency, and cleanliness. [Stove & fuel technical tests.](#)

5. Operation & Maintenance

The supplier & installer/manufacturer shall provide operation and maintenance (O&M) programmes, manuals and capacity building training to ensure full sustainability of the cooking intervention. This part should be agreed upon and stated in the contract, as additional resources may be needed.

Basic notes on maintenance:

- 1 Regular and timely maintenance** of all cooking equipment is essential to prolong the durability of the device.
- 2 Routine maintenance**, as well as major overhauls and replacements, need to be planned and budgeted for in advance. Spare parts, market availability and supply chain will play a big part in the maintenance capacity.
- 3 Lack of maintenance ultimately will have a negative impact** and lead to under performance and substantial costs in the future.
- 4 Safety of cooking devices is intrinsically linked to regular O&M** hence this is a key element to consider and train beneficiaries on. It should not be assumed that an improved cookstove and/or fuel will have the same or increased level of safety compared to the traditional technologies. Unexpected design faults, user unfamiliarity, and significant changes in cooking and fire attending techniques can all potentially contribute to an increased risk of injury to the cook and the family. Therefore, it is fundamental for a quality cookstove program to provide training to the users and to include a regular maintenance routine.

Regular maintenance is worth the cost and cooking access programmes should ensure there will be a commitment to service regularly the cooking devices or to develop an after-distribution (post-sale) service. Training local personnel in the maintenance of the cookstove, fuel storage and feeding system is crucial to ensure sustainability of the cooking access project.

5.1 Safety considerations

Cookstove safety is a major concern. Reducing fire risk especially in congested settlements is critical, while lowering incidents of burns, cuts and other injuries is also important. The [Biomass Cookstove Safety Protocol](#) provides assessments for these hazards, evaluating risk associated with stability, sharp edges, surface temperatures, obstructions, fuel containment within cookstove, and containment of cooking flames.

For liquid fuel stoves, mitigation of the hazards associated with use of liquid fuels, notably fire and accidental ingestion, should be considered. All fuel storage containers should be clearly labelled to identify the fuel and its associated hazards. Fuel storage should be designed to minimize the risk of fuel spilling, leaking, or igniting. In the case of LPG, [the equipment safety guideline for end-users](#) explains how to avoid or reduce the risk associated with the use of LPG in domestic conditions. Codes and standards vary by location based on the Country Energy Regulatory Commission guidelines, hence it is important to consult local rules and regulations.

Important considerations related to [fire hazard](#) are also linked to [shelter and site planning](#), hence the importance of designing those taking into consideration cooking habits and preferences. Inside a shelter, greater safety and protection from the stove can be achieved, for example, by providing a safety partition and a strong solid basis. Domestic and community preparedness should be in place from the start of the implementation such as awareness-raising activities and training, fire-fighting equipment available in strategic places, warning system to alert community members.

5.2 End-User Training

Ensuring a correct use, including storing, cleaning, and maintenance, of the cooking technologies is important to maximize their benefits, including longevity, and ensuring user safety. Often the need for end-user training is underestimated, with detrimental impacts on programs' effectiveness. Training programs which address key topics on operation, maintenance, and safety should always accompany the cooking technology. Training must be delivered in accordance with UNHCR's principle and practices of inclusion and community participation. Some core training topics related to cooking energy access are:

- ▶ **Safe use of cookstoves and fuel.** There are major risks associated with very hot cooking places and stoves inside a house, especially if unprotected, not on a flat surface, and accessible to children (avoid open flames, consider stability of the stove, distribute safety partitions...)
- ▶ **Safe fuel storage**, especially for liquid fuel stoves. The training materials and program should include practices for the safe handling and storage of the fuel
- ▶ **How to use the cookstove** effectively (e.g., how to adapt cooking behaviours) and what not to do (e.g. alter cookstove dimensions, bend handles, etc.)
- ▶ **How to maintain**, and, where possible, repair the cookstove
- ▶ **Explain the potential benefits** of using the new cookstove and how to use supplementary cooking technologies, if relevant (e.g., pot skirts or retained heat cookers)
- ▶ **Explain the potential health impacts** of indoor air pollution, especially on children. Present options to decrease risk (i.e., remove infants/young children from the cooking area, cook outside, etc.)
- ▶ **Promote environmental conservation** by building awareness on the importance of ecosystem roles and the role that trees play, connecting it with fuel efficiency and tree saving
- ▶ **Guidance on how to adapt cooking habits for the new cookstove** (i.e., soaking dry beans before cooking it) and energy saving practices (i.e., preparing the food before starting cooking, use of lid, etc.)

FUEL-SAVING PRACTICES

The handling of the stove and its fuel, the management of the cooking process and the cooking setting itself can all have a significant bearing on energy consumption outcomes, implying the importance of both technologies and techniques, which should be mutually re-enforcing and given equal priority in energy-related interventions. [Energy-saving practices](#) are related to a more optimised fuel preparation as well as timely food preparation, more mindful stove management (cleaning/maintenance, safe storage when not in use, etc.), and a well organised cooking process.

CASE STUDY: TANZANIA FUEL SAVING PRACTICES AND TRAINING

The Safe from the Start programme was launched in the three camps of Nduta, Mtendeli and Nyarugusu camps from October 2018 to March 2019. The programme had three components, namely, Charcoal Briquettes and LPG Comparative analysis; Manufacturing of charcoal briquettes; and community-based training on energy saving practices and SGBV awareness raising. DRC, GNTZ, REDESO, CEMDO and UNHCR were involved in the implementation of this programme.

The third component of training and awareness raising focused on sensitization of the refugee community in the camps on best cooking practices to reduce fuel consumption and it was divided in production of retained heat cookers (RHCs), cooking demonstrations at the food distribution site, and a survey of fuel-efficient stoves coverage, status, and usage.

The target participants of these trainings were those individuals who could influence and disseminate knowledge on best cooking practices to the rest of the refugee community in the camps. These included zone leaders, village leaders, women, and girls as well as spiritual leaders who are the most influential people in the society.



Firewood collection point near Benaco camp, Tanzania. © UNHCR/Chris Sattlberger

6. Monitoring

Monitoring of the cooking programme provide updates on the progress of the intervention and allows the identification of appropriate corrective actions where the performance deviates from the initial plan.

Programme monitoring shall be continuous and with the close involvement of both technical and protection experts. Other aspects that can be monitored beyond cooking and protection areas, are on food security, nutrition, environment, livelihood, and health impacts. However, they should also leave room to capture unintended consequences, both positive and negative, and other specific contextual and operational external factors.

The process should also include persons of concern and other stakeholders directly or indirectly impacted by the programme. This is important to allow for different perspectives and building ownership and commitment for follow up actions and resolutions. Focus group discussions, key informant interviews and household surveys can also be utilized, following the process highlighted in the assessment phase.

- A** Use rigorous monitoring tools and indicators to collect comprehensive information on outcomes and exposure to protection risks
- B** Determine if programme results are achieved effectively, efficiently, and sustainably
- C** Determine the extent of programme sustainability and scale-up
- D** Recommend changes and updates for improvement
- E** Determine if the programme is relevant for the current situation

Cooking programmes require relevant and context-specific indicators to measure specific results and potentially support further collaboration, advocacy, and fundraising. Each indicator requires clear measurement criteria and a monitoring/data collection plan, stating who will collect the data (e.g. UNHCR personnel or partners as part of the PPA), the periodicity of monitoring (e.g. quarterly, annually) and the budget to perform data collection.

Standardization of progress measurement of different cooking interventions will ensure the creation of a comparable set of data and determine the most effective delivery option adopted for a specific context.

Starting in 2021, UNHCR has adopted a new Results-Based Management (RBM) approach for strategic planning, monitoring, and reporting, named COMPASS. The following energy related indicators have been included in the list of Good practice indicators. Operations are encouraged to use, whenever appropriate, the following indicators to ensure consistent and comparable monitoring across our interventions.

Level of Results	Results Area	Indicator
Output	8. Well-Being and Basic Needs	<ul style="list-style-type: none"> ▷ CORE INDICATORS: Proportion of PoC with primary reliance on clean (cooking) fuels and technology ▷ GOOD PRACTICE INDICATOR: # of POC receiving fuel for cooking (CBI or in-kind)
Outcome	9. Sustainable Housing and Settlements	<ul style="list-style-type: none"> ▷ GOOD PRACTICE INDICATOR: % of community facilities (schools, health centers, markets...) with access to sustainable energy

A set of indicators related to cooking energy can be found in the [UNHCR Global Strategy for Sustainable Energy](#) – Output 2 on Sustainable, Safe and Clean Cooking Energy:

- ▶ # of clean cooking access projects
- ▶ # of livelihoods projects that are linked to cooking energy

And in existing databases of other UNHCR sectors, for example [UNHCR Standardized Expanded Nutrition Survey \(SENS\)](#) – Module 5 on Food Security includes a set of questions to determine the population’s access to and use of cooking fuel:

- ▶ Type of cooking fuel used by the household
- ▶ # of households receiving cooking fuel assistance
- ▶ # of days per month receiving fuel supply

More references related to cooking access indicators are in [Annex 7.3](#).

There is the tendency to collect more data than required. This is a waste of time and resources and it can be a burden for the community. To reduce the risk of wasteful data collection and assessment fatigue, ensure that your purpose and intended use for each indicator is clear. Ensure alignment with other sectors’ (e.g., nutrition) data collection processes related to access to cooking fuel.

7. Annexes

7.1 Annex 1 – Samples of cooking assessment questionnaires

This Annex provides a sample of questionnaires specifically related to energy issues, according to the [UNHCR Tool for Participatory Assessment in Operations, specifically Part III, Step 5, “Facilitating discussions”](#) for the proper preparation, facilitation, and permission to conduct an assessment.

The following samples are a guide for an introductory presentation to a discussion specific on cooking energy and a formal way to ask the participants for their permission to proceed. The text and the following questions can be adapted to the context and specific situation where the discussion is conducted. External existing literature² can also be consulted.

7.1.1 Sample focus group discussion introductory text and questions



Welcome and thank you very much for your time. I am and I work with..... I am here to gather information about your views and experiences regarding fuel for cooking and other household needs.

I would like to ask your permission to interview you about cooking fuel issues including the type of fuel used by communities here, the challenges faced in obtaining and using fuel, and your ideas about how to improve safe access to fuel. I will use the information that you share with me to provide recommendations.

Thank you for your voluntary participation. Please feel free to answer only the questions you are comfortable with or leave at any time. Any information that we gather in this discussion will be confidential unless you expressly request or allow us to use your name or photograph. Please do not share any personal incidents of harm and if you wish to speak with someone or receive support about such an incident afterwards, this can be facilitated. I expect our talk to last about [length of time]. Do you have any questions? Do I have your permission to begin?

A. General

- ▶ How long have you been living here?
- ▶ How many people live in your household?
- ▶ In which type of housing are you living?

² For some examples refer to WFP Handbook on Safe Access to Firewood and alternative Energy (SAFE) <https://www.wfp.org/publications/wfp-handbook-safe-access-firewood-and-alternative-energy-safe> and Toolbox for Energy Assessments in Refugee Settlements and Host Communities (Uganda 2019) <https://data2.unhcr.org/en/documents/download/69807> and Inclusive Energy Access Handbook <https://www.womensrefugeecommission.org/wp-content/uploads/2020/10/Inclusive-Energy-Access-Handbook-2020.pdf>

B. Food and Cooking

- ▶ What is your staple food? How long does it take to cook it?
- ▶ Who is the primary cook in your household?
- ▶ How many meals per day does this person cook? How many meals would you like to have?
- ▶ How much time is spent cooking?
- ▶ Where do you normally cook (inside, outside, communal kitchen...)?

C. Cooking technology

- ▶ What device does your household currently use for cooking? (i.e.: 3-stone fire, clay stove, metallic stove, LPG stove, electric stove, biogas stove, other?)
- ▶ If you have a stove, how did you get it? Do you like it – why or why not? What is the most important thing about the stove?
- ▶ Does the stove help to save you and your family members time on firewood collection? If so, what do you do with that time?
- ▶ Do you save money thanks to the stove? If so, what do you do with that money?

D. Access to fuel

- ▶ What type of fuel does your household use to cook meals?
- ▶ How did you select this type of fuel to use for cooking?
- ▶ Does your household use other types of fuel for heating and lighting your home?
- ▶ How much fuel do you use per week (or per meal, if it is easier to calculate)?
- ▶ Where does your household get fuel? (e.g., collect yourself, depend on others to collect, purchase or given)
- ▶ Does your household have enough cooking fuel for your family? If not, what do you do to cope? (skip meals; undercook meals; purchase or trade for the remainder, etc.)
- ▶ Do you face any challenges in obtaining fuel for your needs? (Costs, distance?)

▶ if fuel is collected

- ▷ What kinds of firewood do you collect?
- ▷ How often do you (*or the main firewood collector in the family, if not the interviewee*) collect it (per week)?
- ▷ How long do such trips take (in hours)?
- ▷ Do you go alone or with others? If yes, how many others?
- ▷ Where exactly do you go to find the wood? Why do you go to that location?
- ▷ Do you collect firewood to sell? If yes, about what percentage of the wood that you collect, are you selling?

▶ if fuel is purchased

- ▷ What type of fuel do you purchase? (i.e., firewood, charcoal, briquettes)
- ▷ How much roughly do you spend per week on cooking fuel? What proportion of your income goes towards cooking fuel?
- ▷ Where do you purchase it?
- ▷ Who sells it?
- ▷ Where do the sellers obtain the fuel?
- ▷ Why do you purchase the wood/charcoal rather than collect it yourself?

▶ if fuel is provided

- ▶ Who is providing you with fuel?
- ▶ What type of fuel are you receiving? How often?
- ▶ Is the amount you receive enough to cook for your family every day and meet your other household needs?
- ▶ Have you discussed your firewood/fuel needs with the agency that gives it to you? *(if relevant)*

E. Income generation

- ▶ Do you collect firewood or manufacture charcoal or briquettes to sell? Who usually participates in this activity?
- ▶ How much money is earned this way?

F. Protection

Perceptions of safety incidents should not be probed for details and participants should be reminded to maintain confidentiality and not disclose identifying information in the group setting. If anyone needs to receive support or services afterward this must be facilitated according to the referral pathways. Consult the protection and gender-based violence specialist prior to arranging the consultations.

- ▶ What are the risks faced when collecting and/or buying cooking fuel? Are these risks different for women, men, girls, and boys?
- ▶ What would make you feel safer?
- ▶ Are there any strategies employed by community members to protect themselves while obtaining fuel?
- ▶ If an incident of harm occurs, do community members know where to receive help and services?

G. Other

- ▶ Are there cooking fuel related programs or activities here? Are you a part of them and if not, why not? If so, do you like them?
- ▶ In terms of energy – cooking fuel, lighting, and heating – what do you need to help improve your situation?



I want to thank you for your participation today. The information you provided is very valuable to this project and gives feedback to the organizations working here. Is there anything else you would like to tell me that I have not asked you related to cooking fuel?

7.1.2 Sample of key informant interview guide

Some important information could be found in various sectors that may have cross-cutting topics related to cooking energy. The following table highlights some of them.

Sector	Cross-cutting topics related to cooking energy
Protection and gender-based violence	Information on incidents related to cooking technology, and fuel collection
Environment	Information on availability of and access to cooking energy related natural resources and environmental challenges
Food security, nutrition, and health	Information on type of food and/or CBI being utilized by PoC, access to and availability of cooking fuel, type and cooking technology and PoC practices

Sector	Cross-cutting topics related to cooking energy
Government focal points	Information on relevant protection concerns including challenges with host communities, and relevant policy and legislative framework
Livelihoods & Early Recovery	Information on buying/selling of cooking related energy and/or fuels and technologies, associated risks and challenges
Gender	Information on gender roles and responsibilities relate to cooking, associated protection concerns and how to they differ for women, girls, boys, and men

This KII guide is a sample and should be adapted based on the profile of the interviewee and context.

- ▶ Could you please give your title and your role within your organization, and the overall role and responsibilities of your organization within [name of country], as well as within [name of city/town/camp]?
- ▶ Can you describe challenges of protection from gender-based violence, of environment sustainability and of food security related to cooking fuel and firewood? Does your organization work on issues related to these issue areas? If yes, could you please describe?
- ▶ Are communities in and around [location of the persons of concern] able to safely access adequate cooking fuel for their household needs? If not, why not?
- ▶ What do persons of concern in [location of the persons of concern] do to obtain adequate supplies of fuel? (e.g., collect, purchase, barter, make.)
- ▶ How are the needs and challenges different among different populations within the refugee and host communities?
- ▶ Are there programmes or interventions in [location of the persons of concern] that aim to address these challenges?
 - ▷ If yes, could you please describe them and who is implementing them?
 - ▷ If yes, are they successfully meeting the needs and/or mitigating the challenges of the persons of concern?
- ▶ Are there positive practices and lessons learned in [location of the persons of concern] related to access to fuel, protection of community members, food security, and/or reduction of environmental degradation? If yes, please describe.
- ▶ Is there an informal market for selling firewood or alternative fuel resources?
 - ▷ If yes, has it changed overtime? What factors make up the current market today?
- ▶ What gender-based violence risks derive from issues relating to firewood and fuel needs in [location of the persons of concern]? How are they different among different populations (women, men, boys, girls, host, refugees, and different parts of the camp)?
- ▶ Does your organization implement, contribute to, or advocate for gender-based violence prevention and risk mitigation activities relating to firewood collection and access to cooking fuel? If yes, how?
- ▶ Are there any good practices that have reduced exposure to risk of gender-based violence relating to access to cooking fuel resources? If yes, could you describe them?
- ▶ Does firewood collection affect women's ability to participate in other safer, more productive activities? If so, how? And do firewood collection and/or cooking-related responsibilities affect children's ability to attend school? If so, how?
- ▶ What more is needed to ensure that communities in [location of the persons of concern] are able to safely and sustainably meet their cooking fuel and household energy needs?
- ▶ Is there anything else that you would like to share with me?

7.1.3 Direct observation guide

Before starting, consider the safety and security of staff and the communities in locations where direct observation is proposed, since this may pose a challenge to perform direct observation. Through direct observation the following questions should be answered:

- ▶ Do cooking facility exist? If yes, is it available every day and night?
- ▶ How are people meeting their cooking needs?
- ▶ Who is doing the cooking fuel/energy collection/sourcing?
- ▶ What types of energy and/or fuel and cooking technologies are in and around households?
- ▶ Are clean cooking systems being used and/or do they show signs of regular use?
- ▶ Are three-stone fires also being used as a source of cooking and/or do they show signs of regular use?
- ▶ Do households have all the tools needed to apply any clean cooking practices?
- ▶ Where firewood is also source of cooking, are people collecting firewood? If yes, who and where?
- ▶ What time of the day is it?
- ▶ If children are collecting, do they appear to be missing school?
- ▶ Are people selling/trading firewood, kerosene, cooking stoves, and/or other cooking fuels? If yes, who, where, to whom, and for how much?
- ▶ Do observations align with reports during interviews and focus group discussions? If not, what differences and discrepancies do you observe?
- ▶ Other comments: include any other observations, including those related to movements and the activities of women and girls

7.2 Annex 2 – Cooking fuel options and cookstove classification

7.2.1 Cooking fuel options

BLEENS (Biogas, LPG, Electricity, Ethanol and Natural gas) cooking fuel and solar cookers (solar thermal and solar electric) are cooking solutions that typically deliver high performance in terms of reducing household air pollution—often (although not always) regardless of the type of cookstove used. These cooking solutions are often considered “modern” or “clean” solutions.

Alternative Fuel Type	Benefits	Challenges - Considerations
Biomass (Solid)	Briquettes: Manufactured fuel blocks produced by applying pressure, heat and a binding agent (such as starch) to loose biomass residues or waste, to produce compact solid blocks of different sizes and shapes	Briquettes are made from waste materials, such as charcoal dust, saw dust and wastepaper among others. The final product is like charcoal and therefore can integrate with existing user knowledge and stove technologies

Alternative Fuel Type	Benefits	Challenges - Considerations
Biomass (Solid)	<p>Pellets: Densified products manufactured from organic matter, such as agricultural or organic waste, sawdust, or peat. Contrary to briquettes, for pellets no binder is needed as the lignin melts under the extremely high pressure</p>	<p>Potential to integrate with some charcoal-oriented cooking technologies; however, most effective for use in gasifier stoves such as top load updrafts</p> <p>The production cost is high, and it needs high-power machinery to press the pellets properly</p>
Gas-Liquid	<p>Biogas: A mixture of methane and carbon dioxide given off during the digestion of organic matter (OM) in the absence of oxygen, which can be collected, piped and lit for cooking or lighting. Suitable organic materials include animal manure, crop residues or grass, mixed with water</p>	<p>The rich organic slurry which is a by-product of the biogas production process is a high value agricultural fertilizer. Provides a potential integrated sanitation solution using livestock manure and human waste (toilet connections)</p> <p>Users' acceptance of waste fuel can be limited. The system is very sensitive to proper feeding and use. Any introduction of non-OM materials to fuel stock (solid materials, soap, pesticides, etc.) will negatively impact gas production. It needs a good amount of water</p>
	<p>Ethanol: an alcohol clean liquid biofuel derived from the fermentation of sugar- or starch-rich organic matter. The most common fuel stock for ethanol is sugar-based biomass, such as sugarcane or molasses, although starches like cassava, sugar beet, potatoes, maize and wheat, or cellulose materials, such as wood and grass, can also be used</p>	<p>Faster cooking times: it is easy to light and provides instant heat for fast cooking times. When combined with the reduction or elimination of fuel collection duties, this creates more time for women to engage in productive activities. Overall high user satisfaction</p> <p>Production is highly technical and gains affordability in larger scale production</p> <p>Fuel stock may comprise staple foods for human consumption</p>
	<p>LPG is a clean-burning, portable, and efficient fuel which is very popular in refugee camps. LPG is a co-product of natural gas and crude oil production and usually consists of a mixture of propane and butane for standard heating and cooking purposes</p>	<p>Significant reductions in household air pollution for cleaner living and working environments. On a large scale, there may be savings on household fuel expenditure compared to other biomass fuels, such as charcoal</p> <p>Supply can be limited (and therefore more costly) if commercial gas activity is limited in wider host community markets. Populations who have not had previous experience with gas use may have safety concern</p>
Electrical	<p>Grid connection: electric stove using electricity from the grid</p>	<p>It is a clean cooking solution, safe and reliable (when the electricity supply is reliable). Overall high user satisfaction</p> <p>It requires a high amount of energy and it can be possible when the national grid is available (normally considered in more urban contexts grid connected)</p>
	<p>Photovoltaic: a cookstove electrically powered by a battery bank and photovoltaic panels</p>	<p>It is a clean, safe, and sustainable energy from the sun, which is becoming popular in refugee situations, primarily for electrification</p> <p>Various socio-cultural factors linked to cooking traditions, the high cost of solar technologies and logistical difficulties. This option is still very new in the market</p>

7.2.2 Cookstove classification

	Legacy and basic ICS	Intermediate ICS	Advanced ICS	Modern fuel stoves	Renewable fuel stoves**
Key features	Small functional improvements in efficiency over baseline technologies typically artisan-manufactured	Rocket* designs with significantly improved efficiency; some manufactured with high-end materials	Fan jet or natural draft gasifiers with high combustion efficiency; may require pellets or briquettes	Use fossil fuels or electricity; high fuel efficiency; very low CO and PM emissions	Energy from renewable sources
Typical technologies /fuels	<ul style="list-style-type: none"> • Legacy biomass and coal chimney • Basic efficiency charcoal stove • Basic efficiency woodstove 	<ul style="list-style-type: none"> • Portable rocket stove • Fixed rocket chimney • Highly improved charcoal stoves 	<ul style="list-style-type: none"> • Natural draft gasifiers (top-lit up-draught or side-loading). • Fan gasifier Char stoves 	<ul style="list-style-type: none"> • LPG and dimethyl ether (DME) • Electric /induction • Natural Gas 	<ul style="list-style-type: none"> • Biogas • Ethanol • Methanol • Solar Ovens • High-efficiency biomass stoves with managed fuel supply • Renewably sourced electricity

* A rocket stove burns small-diameter logs in a combustion chamber that contains a vertical chimney.

** The term 'renewable' is context-specific; it can apply to solid biomass if the source is sustainably managed.

Source: Definitions based on wording as published in ESMAP and GACC (2015), The state of the global clean and improved cooking sector: Technical Report 007/15, World Bank, p. 13.

Source: [A Review of Cooking Systems for Humanitarian Settings](#)

7.3 Annex 3 – Indicators related to cooking access

A list of the more commonly used indicators for cooking projects that can be used either in the assessment or monitoring phase:

Indicator	Assessment	Monitoring
% HHs self-reporting skipping meals due to lack of fuel for cooking	X	X
# of units of fuel (kg for biomass, or litre for liquid fuel) used for cooking per HH per day	X	X
Average HH expenditure on all fuels for cooking per month	X	X
% of households reporting using fuel-efficient cookstove to cook the main meal	X	X
# of PoC employed in production, repair, and maintenance of cookstoves	X	X
# of PoC employed in production and preparation of cooking fuel	X	X

Indicator	Assessment	Monitoring
Number of improved cooking-related items (fuel and cookstove) purchased by the PoC	X	X
# of people exposed to deforestation and associated risks	X	X
# of hectares of woodlots for firewood harvesting	X	X
% of PoC receiving fuel for cooking per month		X
% of PoC receiving cookstoves		X
% of HH receiving cash or voucher for fuel		X
% of PoC receiving cash grants or vouchers for cooking equipment		X
% of business plans that include a cooking analysis		X
% of PoC participating in vocational training program related to cooking access		X
% of people who report a positive change in their perception of their exposure to risk related to cooking activities		X

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